British Steel Alloys Inc.

PORSF
11.3.125.1v1
03/01190

March 1990

MATERIAL SAFETY DATA SHEETS

Carbon and Alloy Steel Ductile and Gray Iron	Examples: HR & CF Carbon Steels AISI C1018/12L14/1040 HR & CF Alloy Steels AISI 4130/4140/4340/EN30B Ductile Gr. 65-45-12
Bar, Hollow Bar and Plate	

I. INGREDIENTS

Material or Component	CAS Number	% Weight	Exposure Limits	
			OSHA PEL (mg/m^3)	ACGIH (mg/m^3)
Base Metal				
Iron (Fe)	7439-89-6	Balance	10 (Fe_2O_3 Fume)	5.0 (Fe_2O_3 Fume)
Alloying Elements				
Aluminum (Al)	7429-90-5	0.10 – 1.8	5.0 as welding fume	5.0 as welding fume
Carbon (C)	7440-44-0	0.01 – 4.3	None Listed	None Listed
Chromium (Cr)	7440-47-3	0.01 – 12	1.0 as chrome	0.5 as chrome
Cobalt (Co)	7440-48-4	8 Max.	0.1 as fume	0.05 as fume
Copper (Cu)	7440-50-8	0.04 – 0.7	0.1 as fume; 1.0 as dust	0.1 as fume; 1.0 as dust
Lead (Pb)	7439-92-1	0.15 – 0.35	0.05 as fume and dust	0.15 as dust and fume
Manganese (Mn)	7439-96-5	0.05 – 2.0	5.0 as dust; 1 as fume	5.0 as dust; 1 as fume
Molybdenum (Mo)	7439-98-7	0.01 – 1.10	15 as insoluble compds	10 as insoluble compds
Nickel (Ni))	7440-02-0	0.01 – 10	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)	7723-14-0	0.15 Max.	0.1 as Phosphorous	0.1 as Phosphorous
Silicon (Si)	7440-21-3	0.01 – 4.00	10 as dust	10 as dust
Sulfur (S)	7704-34-9	0.001 – 0.35	13 sulfur dioxide	5 sulfur dioxide
Tungsten (W)	7440-33-7	0 – 18	5 insoluble compds	5 insoluble compds
Vanadium (V)	1314-62-1	0.01 – 1.0	0.5 dust; 0.1 fume	0.05 dust; 0.05 fume
Zinc (Zn) coating	1314-13-2	10 Max.	5.0 as fume	5.0 as fume

Note: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

II. PHYSICAL DATA

Material is (At Normal Conditions): ☐ Liquid ☒ Solid ☐ Gas ☐ Other

Appearance and Odor: Gray-Black with Metallic Lustre — Odorless

Acidity/Alkalinity		Approx.		Vapor Pressure (mm Hg at 20°C)
	Melting Point	2750°F	Specific Gravity (H_2O = 1) — Approx. 7	
ph = NA	Boiling Point	NA°F	Sollubility in water (% by weight) — NA	NA

III. PERSONAL PROTECTION EQUIPMENT

Respiratory Protection NIOSH approved dust/mist/fume respirator should be used during welding or burning if OSHA PEL or TLV is exceeded.	Hands, Arms and Body Use appropriate protective clothing such as welders aprons and gloves when welding or buring. Check local codes
Eyes and Face Safety glasses should always be worn grinding or cutting; face shields should be worn when welding or burning.	Other Clothing and Equipment As required, depending on operation and Safety Codes.

IV. EMERGENCY MEDICAL PROCEDURES

Inhalation:	Remove to fresh air; if condition continues, consult physician.
Eye Contact:	Immediately flush well with running water to remove particulate; get medical attention.
Skin Contact:	If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.
Ingestion:	If significant amounts of metal are ingested, seek medical attention.